



The Clean Energy Communities Low-to-Moderate Income Program (LMI) supports local governments and not-for-profit organizations by funding energy efficiency projects specifically designed to serve low to moderate income Marylanders.

Total Energy Savings = **155,551** Million British thermal units (MMBtus)

	2014	2015	2016	2017	2018
Electricity Savings (MMBtu)	12,405	13,795	25,213	18,739	6,854
Natural Gas Savings (MMBtu)	16,984	19,159	17,486	17,023	7,758
Propane Savings (MMBtu)	33	21	12		70
Total Savings (MMBtu)	<b>29,421</b>	<b>32,975</b>	<b>42,711</b>	<b>35,762</b>	<b>14,682</b>

**77,006** MMBtus Electricity Saved= Energy to power **1,881** Maryland homes for a year

or enough energy to charge **2,035,010,905** cell phones for a year

or **78,410** MMBtus Natural Gas Saved = the offset of **407,532** gallons of diesel consumed

*Please note, all above calculations were based on US Environmental Protection Agency (US EPA) calculations, see page 13 for specifics.*

## Greenhouse Gas (GHG) Reduction: **15,719** metric tons

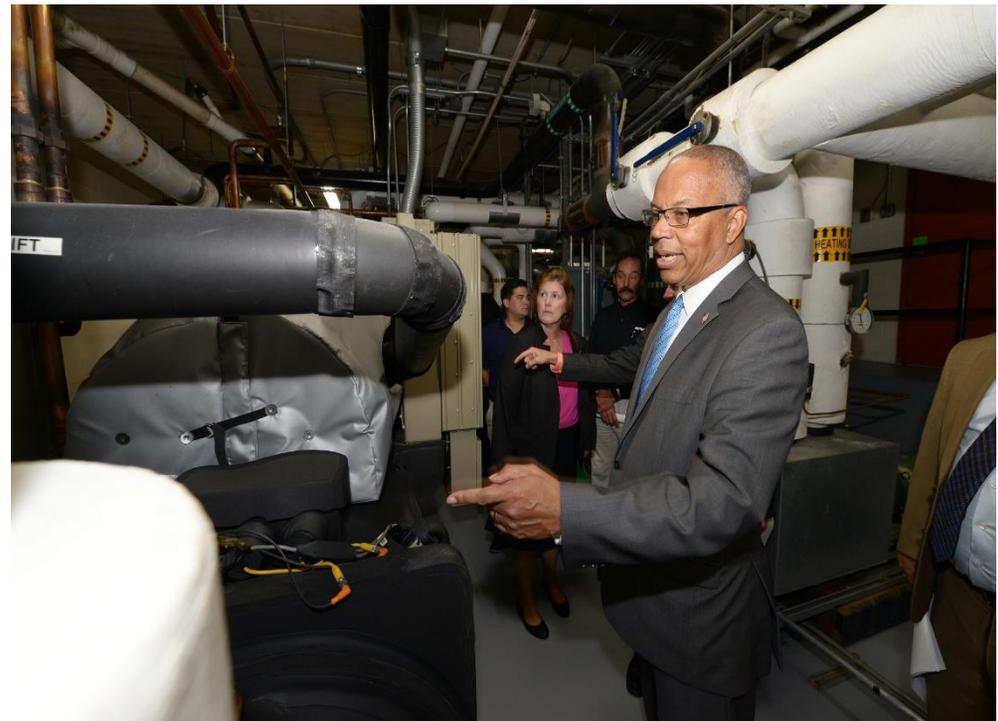
	Green House Gas Reductions
2014	992.24 metric tons
2015	3448.8131 metric tons
2016	5,412 metric tons
2017	4,235 metric tons
2018	1,631 metric tons
<b>Totals</b>	<b>15,719 metric tons</b>

**15,719** metric tons of GHG reduction = erasing pollution from **174.6** flights from New York to San Francisco

or removing **3,337** passenger vehicles from the road for a year

or **208** tanker trucks full of gasoline

B'nai B'rith Homecrest House used their \$190,000 LMI grant to upgrade the air conditioner / chiller which ensures senior residents will be healthy despite high heat and humid weather, and minimize chiller breakage issues which will prevent hospitalizations. Read more [here](#).

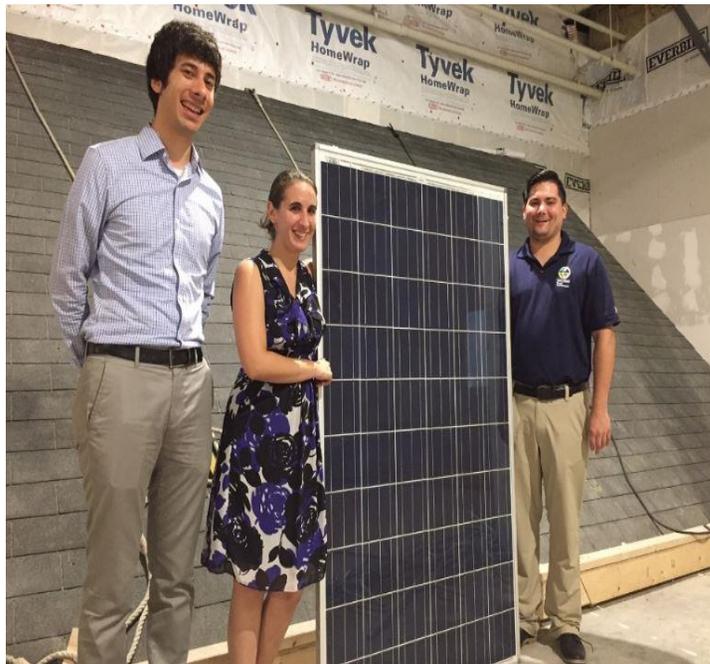


Job Hours Created: **421,503**

Annual Cost Savings: **\$3.9** million

Five Year Program Funding: **\$ 41.3** million

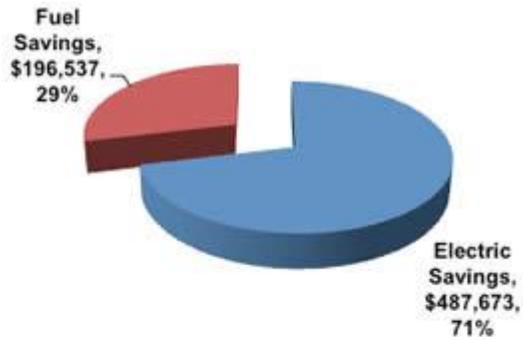
	Job Hours Created	Cost Savings	Total Funds Dispersed
2014	65,602.95	\$684,209	\$9,042,730.65
2015	86,182.96	\$748,135	\$8,847,631.26
2016	81,516.62	\$1,206,801	\$8,876,822.61
2017	118,317.93	\$932,258	\$9,295,897.19
2018	69,882.60	\$386,833	\$5,283,804.54
<b>Totals</b>	<b>421,503.06</b>	<b>\$3,958,236</b>	<b>\$41,346,886.25</b>



Working in concert with MEA, the non-profit Civic Works performed 269 energy audits and upgrade 714 homes with their 2017 LMI grant program funds in Baltimore City. Read more [here](#).

## 2014 LMI Program Outcomes

From where did the energy savings come?



Total Energy Savings: 29,421.09 MMBtu

Fuel Type	MMBtu Savings	% Savings
Electric	12,404.74	42%
Natural Gas	16,983.67	58%
Propane	32.68	0%
Total Energy Savings	29,421.09	100%

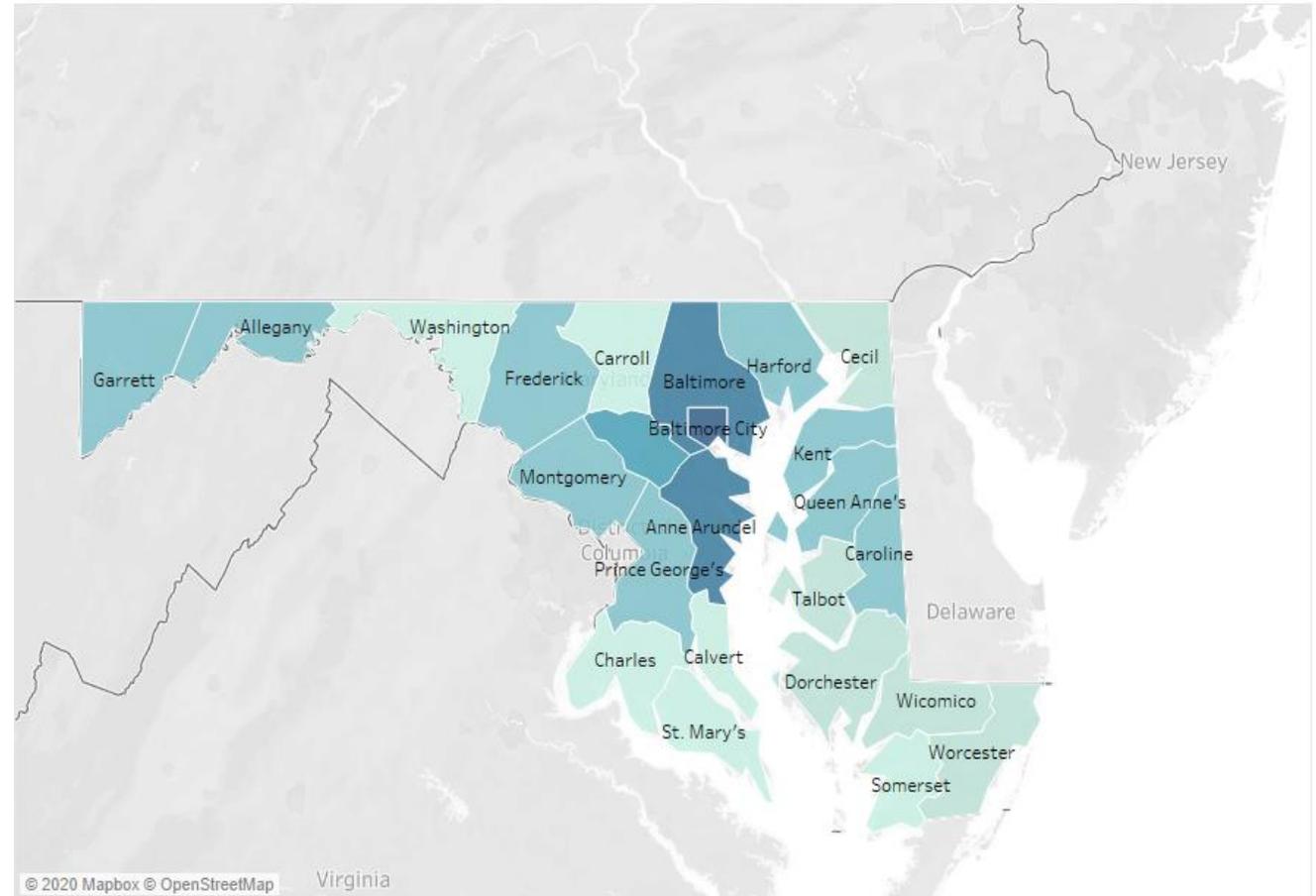
### Estimated Costs, Savings, and Payback

Estimated Annual Energy Cost Savings	\$684,209
Estimated Installed Cost	\$8,522,679
Estimated Payback	12.5 years
Payback without administrative & health/safety costs	11.5 years

### Annual Greenhouse Gases Reductions

Greenhouse Gas	Metric Tons
Carbon Dioxide (CO <sub>2</sub> )	992.24
Nitrous Oxide (N <sub>2</sub> O)	0.0639
Methane (CH <sub>4</sub> )	0.2039
Sulphur Oxide (SO <sub>x</sub> )	20.7941
Nitrogen Oxide (NO <sub>x</sub> )	4.5803

## 2014 LMI Data



Number of Awards

- 1 Awards
- 2 Awards
- 3 Awards
- 4 Awards
- 5 Awards
- 6 Awards

## 2014 Case Studies

[Bladensburg Collaborative](#) - Since 2012, a collaborative of local governments in Maryland's Prince George's County has leveraged the LMI grant to complete energy efficiency retrofits for homeowners in need of assistance. Beginning with the town of Bladensburg, the collaborative grew to serve 17 towns in 2014. Read more [here](#).

[Community Action Council of Howard County \(CAHC\)](#) – Using their 2014 LMI grant, CACHC helped almost 200 families in five counties save money and energy. The nonprofit's energy efficiency upgrades have created over 4,000 labor hours for Maryland workers and resulted in more than \$70,000 in annual savings. That provides each family with anywhere from \$200 to more than \$500 a year in saved income to help make ends meet. Read more [here](#).

[Caroline County & Choptank Habitat for Humanity and Habitat for Humanity](#) - From 2010 to 2014, Caroline County Habitat for Humanity (CCHFH) and Habitat for Humanity Choptank (HFHC) enabled 97 homeowners in three counties to live in safer, healthier, and more energy efficient homes through the Clean Energy Communities Low-to-Moderate Income (LMI) Grant Program. Read more [here](#).

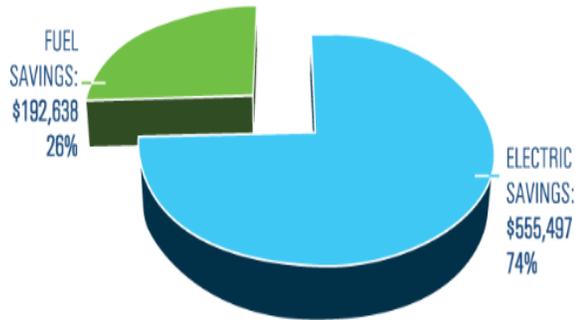
[Healthy Neighborhoods \(HNI\)](#) - This non-profit that has been working to improve Baltimore's neighborhoods for more than a decade and used their 2014 LMI grant to extend its reach in some of the city's neediest communities. Working in partnership with the Baltimore City Energy Office and 11 other city nonprofits, HNI helped make 27 facilities more energy efficient. By lowering operating costs at these sites, HNI makes it possible for the savings to be directed to serving some of the city's most vulnerable residents such as the homeless, those with mental, physical or developmental disabilities, and persons with substance abuse disorders, among others. Read more [here](#).

Thermal imaging of the Maryland Center for Veterans Education and Training (MCVET) in Baltimore indicates building heat gain prior to MEA-funded insulation and other upgrades. This project was part of the Healthy Neighborhoods 2014 project.



## 2015 LMI PROGRAM OUTCOMES

Where did the energy savings come from?



**TOTAL ENERGY SAVINGS 32,795 MMBTU**

FUEL TYPE	MMBTU SAVINGS	% SAVINGS
ELECTRIC	13,795	42%
NATURAL GAS	19,159	58%
PROPANE	21	0.1%
<b>TOTAL ENERGY SAVINGS</b>	<b>32,945</b>	<b>100%</b>

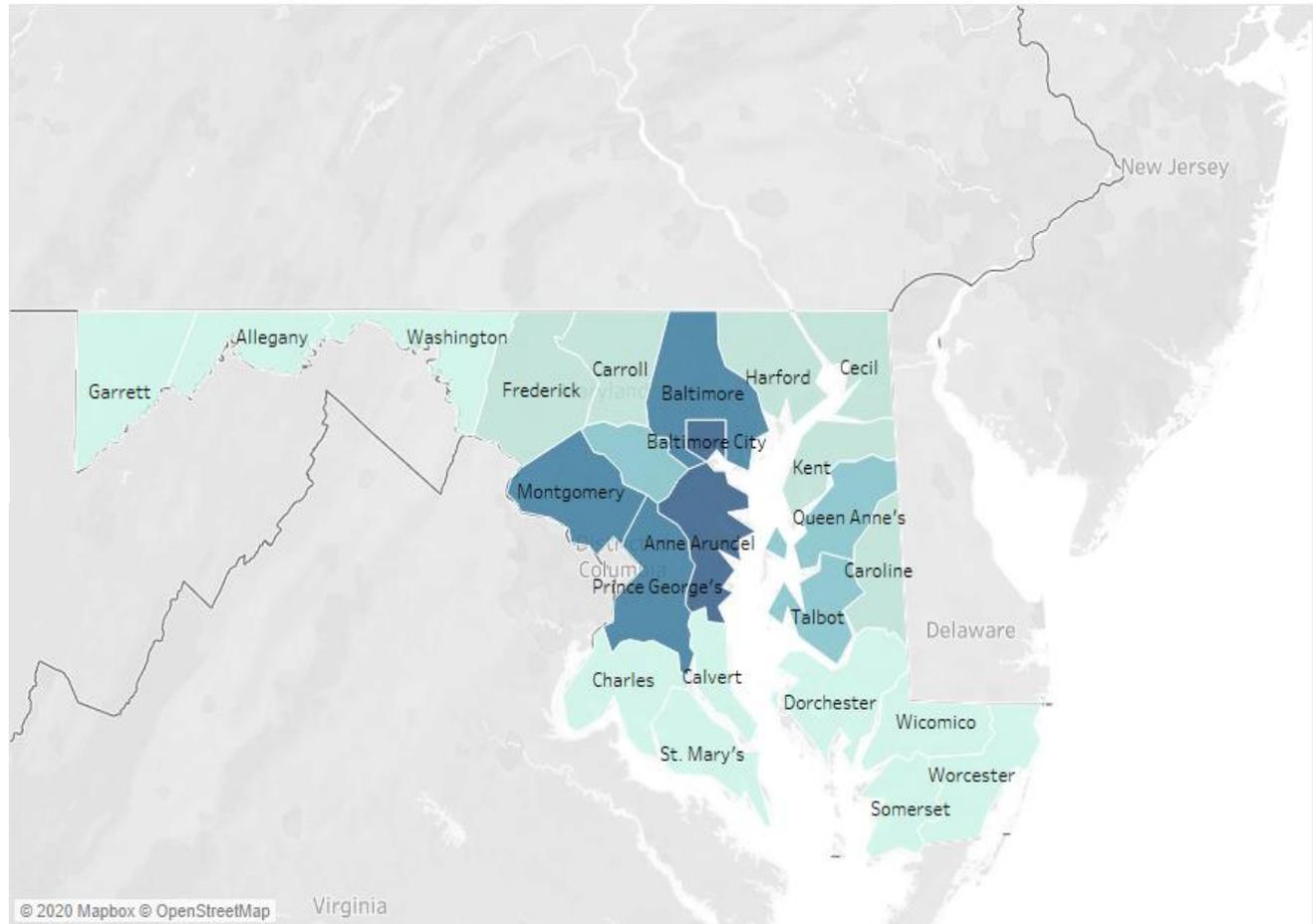
### ESTIMATED COSTS, SAVINGS, AND PAYBACK

ESTIMATED ANNUAL ENERGY COST SAVINGS	\$748,136
ESTIMATED INSTALLED COST	\$8,829,593
ESTIMATED PAYBACK	11.8 YEARS
PAYBACK WITHOUT ADMINISTRATIVE & HEALTH/SAFETY COSTS	10.5 YEARS

### ANNUAL GREENHOUSE GASES REDUCTION

GREENHOUSE GAS	METRIC TONS
CARBON DIOXIDE (CO <sub>2</sub> )	3448.8131
NITROUS OXIDE (N <sub>2</sub> O)	0.0708
METHANE (CH <sub>4</sub> )	0.2258
SULPHUR OXIDE (SO <sub>2</sub> )	23.0241
NITROGEN OXIDE (NO <sub>x</sub> )	5.0693

## 2015 LMI Data



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### Number of Awards

- 1 Award
- 2 Awards
- 3 Awards
- 5 Awards
- 6 Awards

## 2015 Case Studies

[Arundel Community Development Services, Inc. \(ACDS\)](#) – This non-profit utilized their 2015 LMI grant to support energy efficiency retrofits in 142 units at the Harbor House Apartments. As a result of the installed measures at Harbour House, each residence is estimated to save an average of \$600 annually. Over their useful life, the installed energy measures will improve the living environments of an estimated 2,576 Marylanders. Read more [here](#).

[Civic Works](#) - Working to strengthen Baltimore County's neighborhoods, this non-profit leveraged funding from their 2015 LMI grant to reach residents not served by other government and utility energy efficiency programs. This focused effort on filling service gaps has resulted in improved home energy efficiency for 303 low- and moderate-income families in the Baltimore region. Additionally, these families have also enjoyed health, safety, and financial resilience benefits via these energy upgrades. Read more [here](#).

[Green & Healthy Homes Initiative \(GHHI\)](#) - Formerly known as the Coalition to End Childhood Lead Poisoning, GHHI has been helping the city's residents get help for sick children in unhealthy physical environments since 2008. GHHI was able to help Baltimore households, with a \$215,000 LMI grant that supports GHHI's comprehensive strategy to improve health, economic and social outcomes along with home energy efficiency. Read more [here](#).

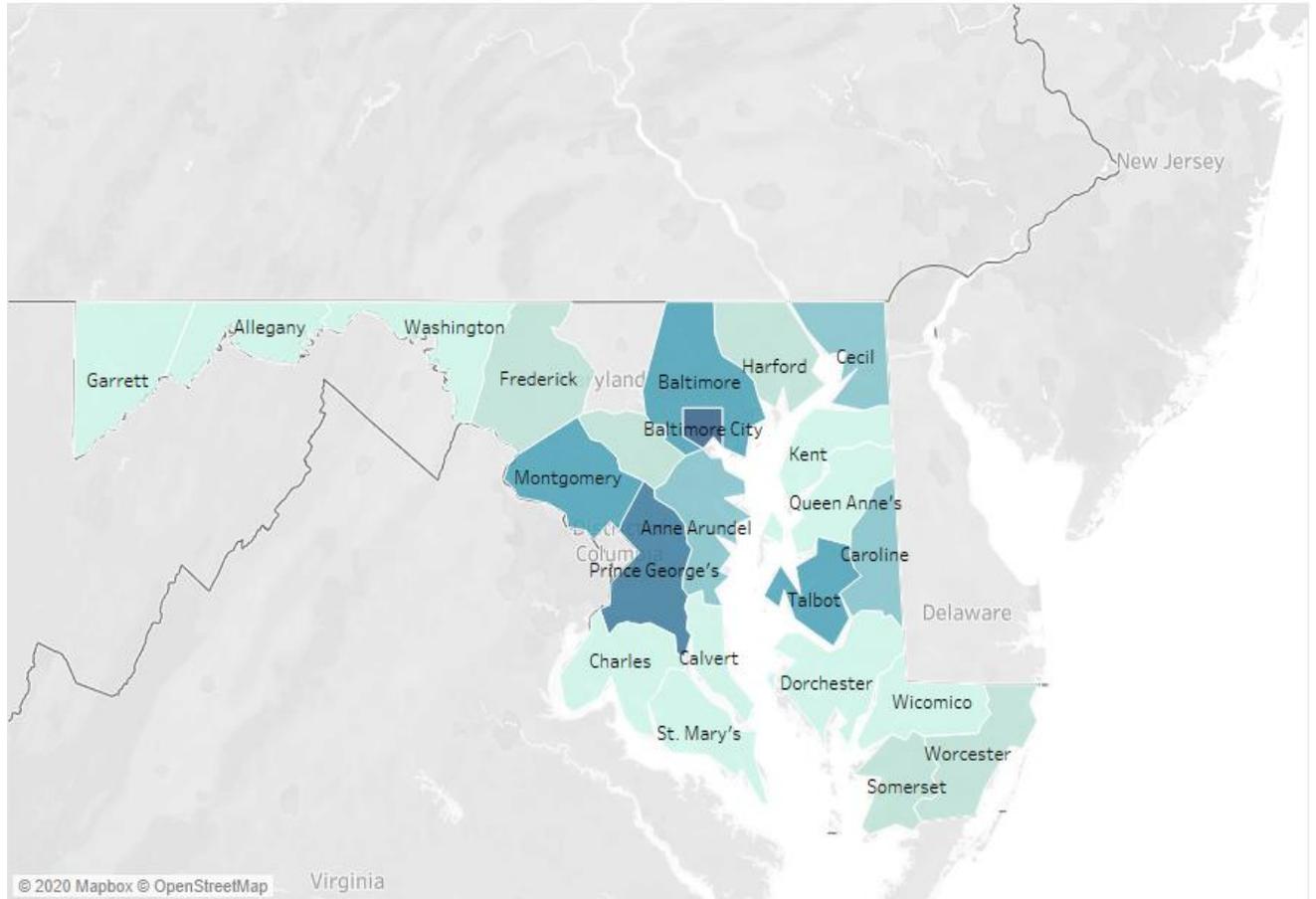
Before and After: Adding attic insulation greatly improved both the energy efficiency of the apartments and the comfort level of residents assisted from the ACDS project in 2015



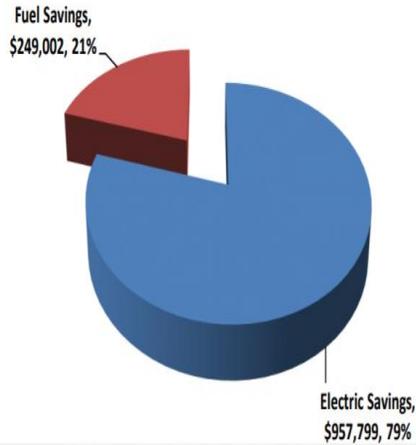
# 2016 Program Outcomes

Please note technical review parameters were changed in 2016 as the program was expanded to more equally distribute funding across the state.

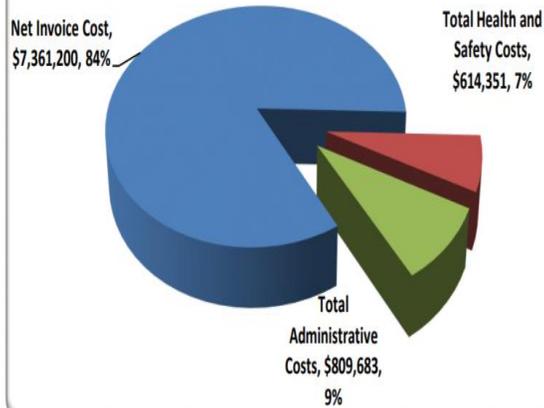
2016 LMI Data



## Energy Cost Savings Distribution

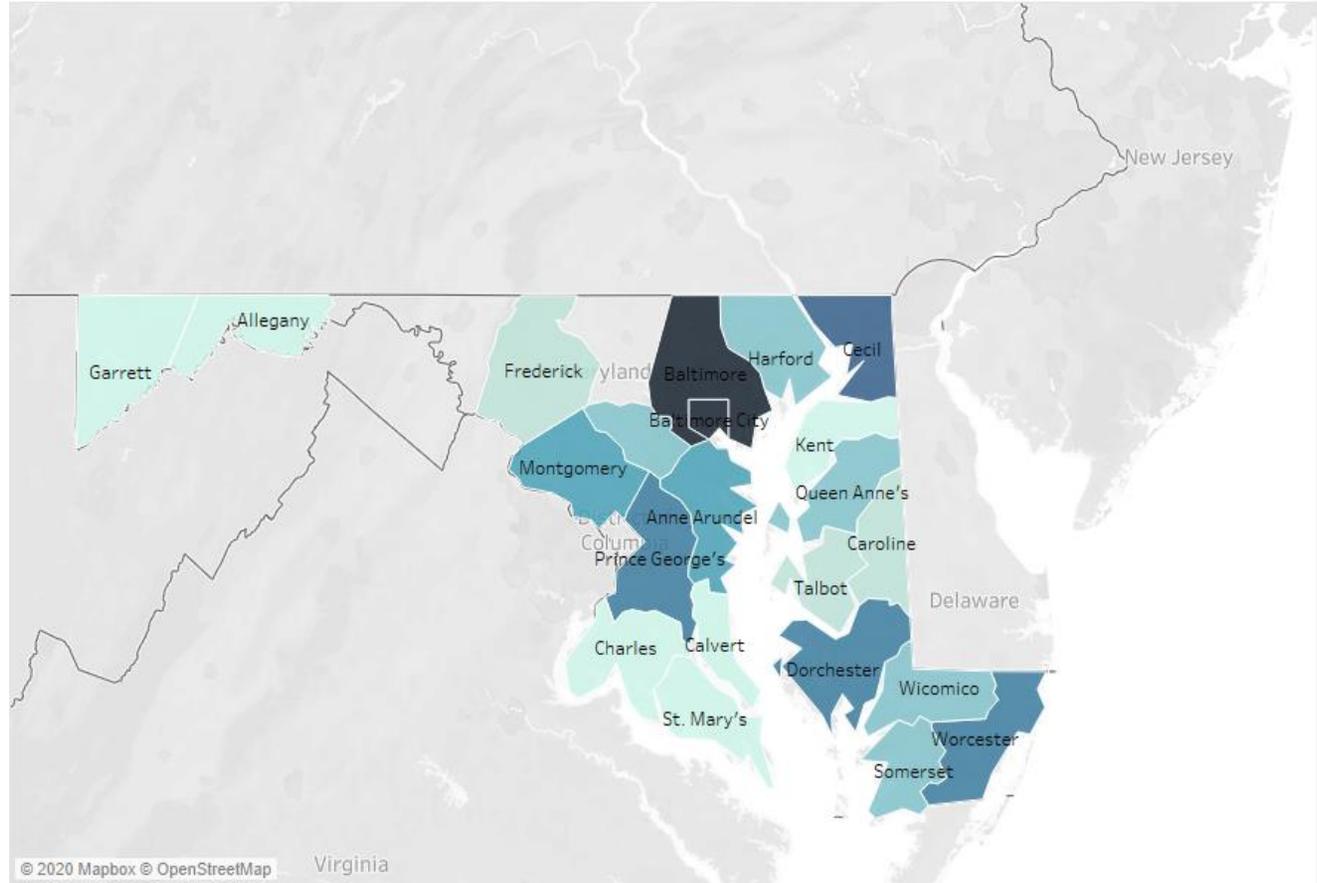
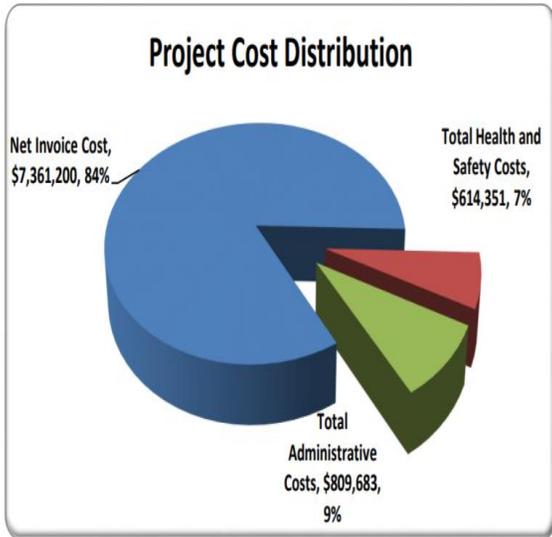
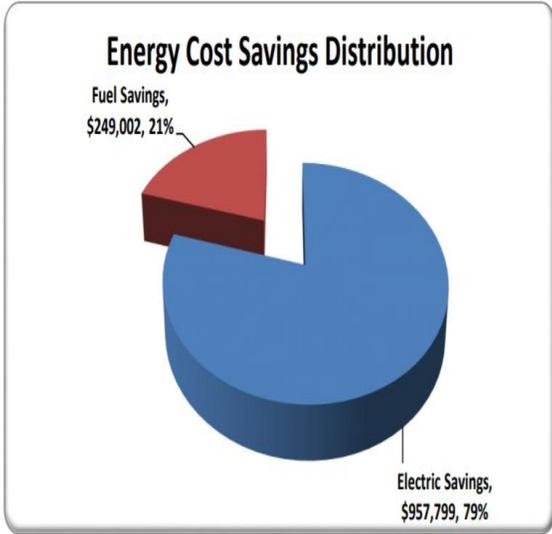


## Project Cost Distribution



# 2017 Program Outcomes

## 2017 LMI Data



## 2017 Case Studies

**Center for Urban Families**— A commercial building located in Baltimore City with a mission to “strengthen urban communities by helping fathers and families achieve stability and economic success” used their 2017 LMI grant to tune up their HVAC controls and upgrade their air sealing, insulation, and lighting retrofit measures. Their anticipated energy savings is \$36,941 or 293,526 kWh for this nine-year old building. Read more [here](#).

**Talbot Interfaith Shelter** – Easton’s only year-round family shelter utilized their 2017 LMI grant to address air sealing and insulation issues as well as an HVAC tune-up, and lighting upgrades to improve comfort and reduce extremely high energy bills in 1890’s era home. The estimated annual energy savings is \$3,050. Read more [here](#).

**Northwest Townhomes**— Unable to access funding from other programs, our LMI grant provided funding for much needed cost-effective energy efficiency upgrades in 68 townhomes. These energy upgrades will improve resident health and safety, enable future energy efficiency upgrades, and generate an average annual household energy cost savings of \$536. Read more [here](#).

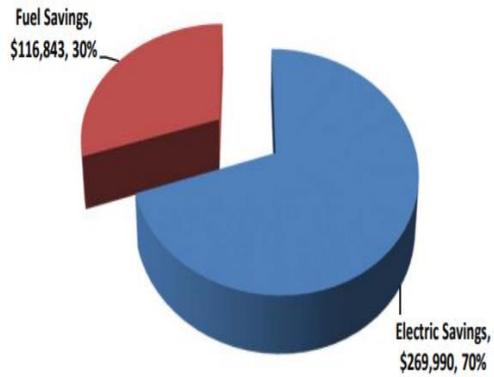
**The Preserve at Red Run**— To encourage new construction to install more energy efficient measures our LMI grant allows for incremental cost upgrades. Funds from the LMI grant allowed Red Run to use LED lights in all dwelling units and common areas, install ENERGY STAR® refrigerators and HVAC equipment throughout the project, maximize the insulation and air sealing, use WaterSense® faucets and showers, and upgrade to high efficiency windows throughout the project. These incremental upgrades will pay for themselves in energy savings in just over 2 years. Read more [here](#).



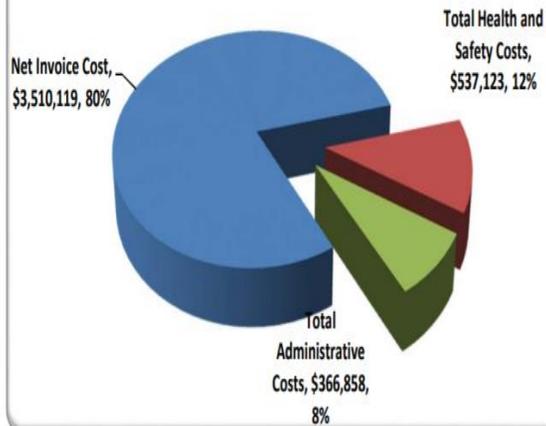
Example improvements from work at Talbot Interfaith Shelter in 2017. basement measures included spray foam insulation on the band joists, duct sealing and duct insulation in a crawlspace, moisture barrier on the crawlspace floor, and spray foam on an exterior wall. Old and inefficient light bulbs were switched to LED bulbs.

# 2018 Program Outcomes

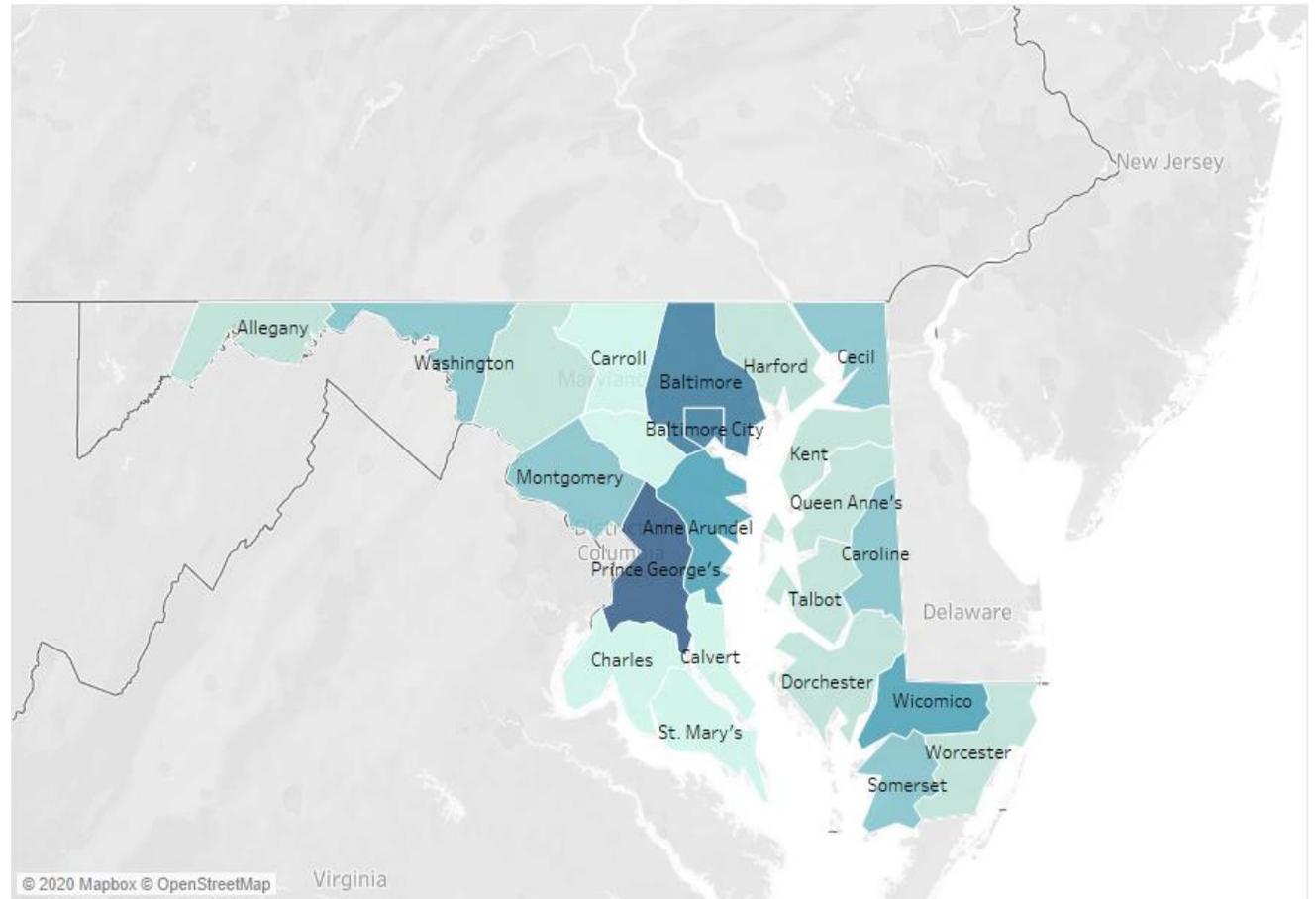
## Energy Cost Savings Distribution



## Project Cost Distribution



2018 LMI Data



## 2018 Case Studies

[Unity Properties](#) - A subsidiary to Bon Secours, Unity Properties is dedicated to providing safe and affordable housing to the residents of West Baltimore. Having received three consecutive funding awards from the LMI grant, they were able to renovate 90 apartments in 45 row houses serving low-to-moderate income seniors, families, and people with disabilities. MEA funds enhanced other leveraged funds by providing energy audits, weatherization and air sealing, and upgrades to HVAC, appliances, and lighting, creating a safer, more comfortable, and more affordable housing for its residents. Read more [here](#).

[Wicomico County Housing Authority](#) - Used their 2018 LMI funding to restore 15 single family homes from the brink of condemnation and turn them into comfortable, safe, and energy efficient homes. MEA funding was used for weatherization and air sealing, insulation, energy efficient upgrades, and various health and safety measures to create a healthier, safer living environment with lower monthly utility bills for these low income families. Read more [here](#).

[SAFE Housing, Inc.](#) - Worked with contractors and MEA to correct issues in several Western Maryland communities that created an environment that disqualified home from energy efficiency upgrades. Funds were used for the completion of energy audits, followed by weatherizing measures and upgrades to HVAC, appliances and lighting among other eligible measures. Many low and moderate-income homes do not qualify for energy efficiency programs due to health and safety or structure issues. strengths of the MEA LMI program is that it allows and encourages projects that fall out of the scope for these programs. Read more [here](#).

Unity Partners 2018 project examples of energy measures upgraded include (from left) CAZ testing and duct sealing for furnace, new ENERGY STAR® appliance upgrades, wall mount LED porchlights, and mechanical ventilation fans and humidity control switches in restroom.



## **77,006MMBtus Electricity Saved= Energy to power 1,881 homes for a year**

(22,568,507kWh/12,000kWh/yr/Maryland Homes= 1,881homes/yr)

## **or enough energy to charge 2,035,010,905 cell phones for a year**

([14.17 Wh - (22 hours x 0.14 Watts)] x 1 kWh/1,000 Wh = 0.011 kWh/smartphone charged

0.011 kWh/charge x 1,558.8 pounds CO<sub>2</sub>/MWh delivered electricity x 1 MWh/1,000 kWh x 1 metric ton/2,204.6 lbs = **7.84 x 10<sup>-6</sup> metric tons CO<sub>2</sub>/smartphone charged** (<https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references>)

## **78,410MMBtus Natural Gas Saved = 407,532 gallons of diesel consumed offset**

Calculation: 10,180 grams of CO<sub>2</sub>/gallon of diesel = 10.180 x 10<sup>-3</sup> metric tons CO<sub>2</sub>/gallon of diesel (<https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references>)

## **15,719 metric tons of GHG reduction = erasing pollution from 174.6 flights from New York to San Francisco** (Round trip flights emits

.9metric tons of CO<sub>2</sub> per person, the average flight has 100 people. 15,759metric tons of CO<sub>2</sub>/90 metric tons of CO<sub>2</sub>/Flight = 174.6 Flights

## **or removing 3,337 passenger vehicles from the road for a year**

Calculation: 8.89 x 10<sup>-3</sup> metric tons CO<sub>2</sub>/gallon gasoline x 11,484 VMT<sub>car/truck average</sub> x 1/22.3 miles per gallon<sub>car/truck average</sub> x 1 CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O/0.989 CO<sub>2</sub> = **4.63 metric tons CO<sub>2</sub>E/vehicle /year**

## **or 208 tanker trucks full of gasoline**

8.89 x 10<sup>-3</sup> metric tons CO<sub>2</sub>/gallon x 8,500 gallons/tanker truck  
= **75.54 metric tons CO<sub>2</sub>/tanker truck**